

- claims 1, 2 and 9 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 4,747,606 to Jennings (the Jennings patent);
- claims 1, 2, 4 - 7, 9 and 10 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 2,304,152 to Kilchenmann (the Kilchenmann patent); and
- claims 1 - 11 were rejected under 35 U.S.C. 103(a) as being obvious in light of U.S. Patent 3,792,416 to Moulin (the Moulin patent) and the Kilchenmann patent.

Response to Office Action

In response to the Office action, the applicant has submitted new Figures 1A - 1C, amended the specification, cancelled claims 2 and 6, amended claims 1, 3 5, 7 and 9, and added new claim 12.

The Drawings

Figures 1A - 1C were objected to for failing to bear the legend "Prior Art". Therefore, Figures 1A - 1C have been amended to include the legend "Prior Art".

The 35 U.S.C. § 112

Claims 1 - 4 and 9 - 11 were rejected under 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants submit that amendments to claims 1 and 9 overcome these objections.

The Panigati Patent

Claims 1 - 3 and 9 were rejected under 35 U.S.C. § 102(b) as being anticipated by the Panigati patent. Applicants respectfully submit that the Panigati patent fails to teach the limitations of claim 1 or claim 9 and, therefore, cannot anticipate claims 1 - 3 and 9.

The Panigati patent does not teach "a molded skirt . . . comprising . . . a sealing surface; wherein said sealing surface has substantially the same shape as the interior surface of the cavity". The "annular lip" of the Panigati patent is specifically constructed to have (Col 3: 5 - 13):

. . . a circumferential outer diameter smaller than the circumferential outer diameter of the corresponding bed formation. The outer end portions of the lips 9 do not therefore touch the cylinder liner 4, so avoiding the scraping of the lubricating oil but forming, as clearly visible from FIG. 2, an in-take taper between themselves and the cylinder lines 4 which favors the entrance of the oil with the consequent formation and maintenance for the lubricating film.

The seal described in the Panigati patent is able to achieve perfect sealing despite the curling of the "annular lip", because the seal is used in a high pressure environment that causes the "annular lip" to swell (Col 3: 38 - 35). Seals with curled lips or skirts can fail in low pressure applications, therefore, the seals described in the above referenced application do not rely solely on swelling due to high pressure to create a seal.

The Jennings Patent

Claims 1, 2 and 9 were rejected under 35 U.S.C. § 102(b) as being anticipated by the Jennings patent. Applicants submit the Jennings patent discloses a metal-to-metal seal having a ring with a pair of oppositely acting sealing elements integral with the outer periphery of the ring (see Abstract). The sealing elements are described as follows (Col 2: 64 - Col 3: 8):

The first, or outer, sealing element 24 of one pair, comprises a relatively thin walled curved semi-cylinder with a curved outer surface 26 and a central cavity 30 opening towards the path of flow of fluid.

The second or inner sealing element 32 of the pair 20 is essentially a straight angularly disposed, wall 34 with a curved outer surface 36 and with the central portion 16 defining a cavity 40 opening in the opposite direction from cavity 30, i.e., towards the center of the ring so as to be actuated by the leakage of fluid flowing from the opposite direction from the fluid flowing into the first cavity 30 of another seal.

Applicants submit that the above description does not teach a sleeve, a molded skirt integrally formed on said sleeve comprising an interior surface and a sealing surface, where the sealing surface has substantially the same shape as the interior surface of the cavity.

The Kilchenmann Patent

The Kilchenmann patent describes packing for cylindrical parts that includes a ring, which provides metallic sealing and an apron which connects the ring with the part and which extends in the main in the direction of the cylinder axis (col 2: 34 - 49). The claims as amended require (see amended claim 1):

a sleeve;

a molded skirt integrally formed on the sleeve comprising an interior surface and a sealing surface;

wherein the sealing surface has substantially the same shape as the interior surface of the cavity; and

wherein the sleeve and the molded skirt are constructed from an electrically insulating material.

Applicants respectfully submit that the Kilchenmann patent does not teach the combination of the above limitations.

The Combination of the Moulin and Kilchenmann Patents

Claims 1 - 11 were rejected under 35 U.S.C. 103(a) as being obvious in light of the Moulin patent and the Kilchenmann patent. The Office action asserts that the only aspect of the claimed inventions absent from the Moulin patent is a molded skirt integrally formed upon the seal's sleeve. The Office action indicates this element of the invention is disclosed in Kilchenmann and that it would have been obvious to one having ordinary skill in the art at the time of the invention to combine the disclosures of the two references.

Applicants respectfully submit that neither the Moulin patent nor the Kilchenmann patent teaches or suggests the combination of elements from the two references required to give the claimed inventions. Therefore, the combination of the two references would not have been obvious to one of ordinary skill in the art at the time of the filing of the patent application. In addition, Applicants submit that the Kilchenmann patent does not teach the limitations of claim 1 that the Office Action asserts can be combined with the Moulin patent to establish obviousness (see above analysis).

Conclusion

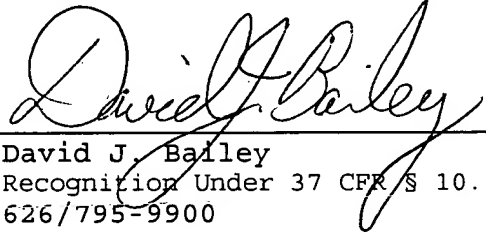
Applicant believes that the claims pending in the case are in condition for allowance, and an early notice of allowability is respectfully requested. Applicant also wishes to draw the examiner's attention to the enclosed document evidencing the limited recognition granted to David J. Bailey under 37 C.F.R. § 10.9(b) to prosecute patent applications on behalf of Christie Parker & Hale LLP. If the Examiner believes that a telephone conference with Applicant's

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attorney might expedite prosecution of the application, please do not hesitate to call at the telephone number indicated below.

Respectfully submitted,

CHRISTIE, PARKER & HALE, LLP

By 
David J. Bailey
Recognition Under 37 CFR § 10.9(b)
626/795-9900

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

Please replace the last sentence on page 3, lines 25 - 28, with the following replacement sentence:

Therefore, wrinkles resulting from the deformation of the flange 14 can prevent the creation of a perfect seal between the sealing assembly 10 and the cavity's cylindrical interior surface [20] 18.

Please replace the third sentence on page 8, lines 10-13, with the following replacement sentence:

The flanges or skirts 48' and 48" are integrally formed on the sleeve and are shaped similarly to the flange 48 of FIG. 2, having interior surfaces 86 and sealing surfaces 88.

In the Claims:

1. (Amended) A device for sealing a cavity comprising an interior surface, said device comprising:

a sleeve;

a molded skirt integrally formed on [said] the sleeve comprising an interior surface and a sealing surface;

wherein [said] the sealing surface has substantially the same shape as the interior surface of the cavity [~~such that the sealing surface is not substantially wrinkled when said sealing surface is in sealing contact with said interior surface of the cavity~~]; and

wherein the sleeve and the molded skirt are constructed from an electrically insulating material.

3. (Amended) The device of claim 1, wherein [said] the sleeve and [said] the molded skirt are constructed from elastomeric material.

5. (Amended) A device for sealing a cavity comprising an interior surface, [said] the device comprising:

a sleeve comprising a longitudinal axis and an insertion end;

a molded skirt assembly integrally formed on [said] the sleeve; wherein [said] the skirt assembly comprises a first integral section extending in a plane which is substantially perpendicular to [said] the longitudinal axis; and

wherein [said] the skirt assembly comprises a second integral section comprising an interior surface and a sealing surface that extends along the length of the sleeve in a direction opposite to [said] the insertion end such that there is a gap between [said] the interior surface and [said] the sleeve;

wherein [said] the sealing surface has substantially the same shape as the interior surface of [said] the cavity; and wherein the molded skirt is constructed from an electrically insulating material.

7. (Amended) The device of claim 5, further comprising: a wiping land located between [said] the molded skirt assembly and [said] the sleeve insertion end.

9. (Amended) A method of sealing an opening of a cavity comprising the steps of:

inserting a portion of a structure through a sleeve of a sealing assembly, [said] the sealing assembly having a molded skirt constructed from an electrically insulating material;

inserting a section of [said] the structure including portion of [said] the structure inserted through [said] the sealing assembly into [said] the cavity through [said] the cavity opening so that [said] the molded skirt is in sealing contact with the inside surface of [said] the cavity wherein [said] the molded skirt comprises a sealing surface

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that has substantially the same shape as the interior surface of
[said] the cavity.